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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/542,763
Filing Date: January 17, 2006
Appellant(s): STENZEL ET AL.

Harris A. Pitlick
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 24, 2009 appealing from the Office action mailed October 15, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Esch et al. in view of Boyer et al. was not applied to claim 5; however, appellant has indicated that claims 1-9, 16-17 and 21 have been rejected over Esch et al. in view Boyer et al.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,935,543	Boyer et al.	08-1999
6,180,076	Uhrlandt et al.	01-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-9, 16, 17, and 19-21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8, 18, 19, 23, and 30 of copending Application No. 10/542,850. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both claim precipitated silica with anticipatory or overlapping ranges of physical and chemical properties such as CTAB, BET, DBP, Sears value, etc. The use claims 19-20

of the instant application read on the claims 23 and 30 of the copending Application No. 10/542,850.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-9, 16-17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,846,506 to Esch et al. in view of US Patent No. 5,935,543 to Boyer et al.

Regarding claim 1, Esch et al. teach a precipitated silica with the following physicochemical properties: BET surface area of 35 to 350 m²/g, CTAB surface area of 30 to 350 m²/g, DBP value of 150 to 300 ml/100g, and Sears value V2 of 6 to 20 ml, wherein the ratio of Sears value to BET surface area, when calculated, would fall within the range of about 0.017 to about 0.57 (columns 1 and 2).

Esch et al. disclose a composition having overlapping ranges of physicochemical properties for the same composition with instant claims. Even though the reference

does not disclose an anticipatory example or range which is sufficiently specific to anticipate the present claims, as noted above, the reference teaches overlapping ranges of physicochemical properties for the same composition with the present claims. Overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05. Therefore, it would have been obvious, at the time of the invention, to have selected the overlapping portion of the range because overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05.

With reference to moisture level, it is noted that the Esch et al. disclose substantially similar precipitated silica with overlapping ranges of physicochemical properties wherein said precipitated silica have substantially similar intended use. The prior art do not expressly disclose a moisture level; however, Esch et al. disclose a substantially similar process of making (column 2, lines 42-65) for the precipitated silica which has similar intended use such as in vulcanizable rubber mixture.

Esch et al. disclose that said invention exhibits better properties such as higher modulus, lower $\tan \delta$ as a measure of tire rolling (column 5, lines 46-54).

Furthermore, Boyer et al., also drawn to precipitated silica having similar physicochemical properties such as overlapping ranges of CTAB, 140 to 185 m²/g, and DBP, 210 to 310 cm³/g, expressly disclose that variation in the parameters and/or conditions during production result in variations in the types of precipitated silica produced (Abstract; column 1, lines 20-23; column 2, lines 12-15, 25-27).

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the disclosure of Esch et al. in order to include the moisture level of 4-8% motivated by the fact that different properties can be achieved by variation in parameters and/or conditions during the production of silica as that taught by Boyer et al.

Regarding claim 2, Esch et al. disclose BET surface area of 35 to 350 m²/g (column 1, lines 45-50; column 2, lines 14-20, 31-35).

Regarding claim 3, Esch et al. disclose that their precipitated silica has CTAB surface area of 30 to 350 m²/g (column 1, lines 50-55; column 2, lines 35-40).

Regarding claim 4, Esch et al. disclose the range of 6 to 20 for the Sears value (column 1, lines 48-52; column 2, lines 34-37).

Regarding claims 6 and 7, Esch et al. disclose DBP value of 150 to 300 ml/100g (column 1, lines 52-55; column 2, lines 37-40).

Regarding claim 8, Esch et al. disclose ranges for Sears value and BET surface area wherein upon calculation of the ratio of Sears value to BET, a range of about 0.017 to about 0.57 is obtained (columns 1 and 2).

Regarding claim 9, based on the disclosure of Esch et al. regarding BET and CTAB values, a ratio of about 1.00 to about 11.16 is obtained (columns 1 and 2).

Regarding claim 16, Esch et al. disclose the same or substantially identical structure for the organosilanes used to modify the precipitated silica (column 2, lines 65-67; column 3, lines 1-40).

Regarding claim 17, Esch et al. disclose a similar organosilane compound used to modify the precipitated silica, based on formula (III), $R^1_n(RO)_{3-n}Si(Alkenyl)$, in which $n=3$ and R^1 : alkyl (column 3, lines 5-14). It is noted that based on the recitation of claim 17 of " $SiR^2_{4-n}X_n$ (where $n=1,2,3,4$)" as one type of organosilanes, and considering $n=1$, X : alkenyl, and R^2 : alkyl, Esch et al. reads on the limitations of claim 17.

Regarding claim 19, Esch et al. disclose the use of said silica in any rubber applications such as, for example, tires, conveyor belts, seals, V-belts, tubes, shoe soles, etc. (column 4, lines 30-34). In addition, Esch et al. disclose the use of said silica in vulcanizable rubber compounds (column 3, lines 42-45).

Regarding claim 20, Boyer et al. disclose that use of precipitated silica for battery separators are known; thus, one skilled in the art would have appreciated the use of said silica with the physical chemical properties as detailed above as a batter separator.

Regarding claim 21, Esch et al. disclose a precipitated silica incorporated into vulcanizable rubber compounds (used in rubber applications such as tire, conveyor belts, seals, V-belts, tubes, etc.) with the following physicochemical properties: BET surface area of 35 to 350 m²/g, CTAB surface area of 30 to 350 m²/g, DBP value of 150 to 300 ml/100g, and Sears value V2 of 6 to 20 ml, wherein the ratio of Sears value to BET surface area, when calculated, would fall within the range of about 0.017 to about 0.57 (columns 1 and 2).

Esch et al. disclose a composition having overlapping ranges of physicochemical properties for the same composition with instant claims. Even though the reference does not disclose an anticipatory example or range which is sufficiently specific to anticipate the present claims, as noted above, the reference teaches overlapping ranges of physiochemical properties for the same composition with the present claims. Overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05. Therefore, it would have been obvious, at the time of the invention, to have selected the overlapping portion of the range because overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05.

With reference to moisture level, it is noted that the Esch et al. disclose substantially similar precipitated silica with overlapping ranges of physicochemical properties wherein said precipitated silica have substantially similar intended use. The prior art do not expressly disclose a moisture level; however, Esch et al. disclose a substantially similar process of making (column 2, lines 42-65) for the precipitated silica which has similar intended use such as in vulcanizable rubber mixture.

Esch et al. disclose that said invention exhibits better properties such as higher modulus, lower $\tan \delta$ as a measure of tire rolling (column 5, lines 46-54).

Furthermore, Boyer et al., also drawn to precipitated silica having similar physicochemical properties such as overlapping ranges of CTAB, 140 to 185 m²/g, and DBP, 210 to 310 cm³/g, expressly disclose that variation in the parameters and/or conditions during production result in variations in the types of precipitated silica produced (Abstract; column 1, lines 20-23; column 2, lines 12-15, 25-27).

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the disclosure of Esch et al. in order to include the moisture level of 4-8% motivated by the fact that different properties can be achieved by variation in parameters and/or conditions during the production of silica as that taught by Boyer et al.

Claims 1-9, 16-17, 19- 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,180,076 to Uhrlandt et al. in view of US Patent No. 5,935,543 to Boyer et al.

Regarding claims 1 and 21, Uhrlandt et al. teach precipitated silica which can be mixed into vulcanizable rubber mixtures as a reinforcing filler and generally has applicability in rubber applications such as tires, conveyors, etc. wherein said

precipitated silica has the physical chemical properties such as BET surface area of 120-300 m²/g, CTAB surface area of 100-300 m²/g, Sears value of 6-25 ml, DBP index of 150-300 g/100g (Abstract; column 1, lines 33-50; column 2, lines 5-35; column 3, lines 33-35; column 5, lines 28-33). The ratio of Sears value to the BET surface area may be calculated; this would fall within the range of about 0.02 to about 0.208; therefore, there is overlapping ranges of this property with in the instant invention.

Uhrlandt et al. disclose a composition having overlapping ranges of physicochemical properties for the same composition with instant claims. Even though the reference does not disclose an anticipatory example or range which is sufficiently specific to anticipate the present claims, as noted above, the reference teaches overlapping ranges of physiochemical properties for the same composition with the present claims. Overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05. Therefore, it would have been obvious, at the time of the invention, to have selected the overlapping portion of the range because overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05.

With reference to moisture level, it is noted that the Uhrlandt et al. disclose substantially similar precipitated silica with overlapping ranges of physicochemical properties wherein said precipitated silica have substantially similar intended use. The prior art do not expressly disclose a moisture level; however, Uhrlandt et al. disclose a substantially similar process of making (column 2, lines 42-65) for the precipitated silica which has similar intended use such as in vulcanizable rubber mixture.

Uhrlandt et al. disclose that said precipitated silica can be dispersed significantly better in rubber mixtures (column 1, lines 34-36).

Furthermore, Boyer et al., also drawn to precipitated silica having similar physicochemical properties such as overlapping ranges of CTAB, 140 to 185 m²/g, and DBP, 210 to 310 cm³/g, expressly disclose that variation in the parameters and/or conditions during production result in variations in the types of precipitated silica produced (Abstract; column 1, lines 20-23; column 2, lines 12-15, 25-27).

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the Uhrlandt et al. in order to include the moisture level of 4-8% motivated by the fact that different properties can be achieved by variation in parameters and/or conditions during the production of silica as that taught by Boyer et al.

Regarding claim 2, Uhrlandt et al. disclose that the precipitated silica had a BET surface area of 120-300 m²/g (column 1, lines 40-45; column 2, lines 5-35).

Regarding claim 3, Uhrlandt et al. disclose that the precipitated silica has CTAB surface area of from 100 to 300 m²/g (column 1, lines 40-45; column 2, lines 5-35).

Regarding claims 4-5, Uhrlandt et al. disclose that the precipitated silica has Sears value of 6-25 (column 1, lines 40-45; column 2, lines 5-35).

Regarding claims 6-7, Uhrlandt et al. disclose the range of 150-300 g/100g for the DBP index value (column 1, lines 40-45; column 2, lines 5-35).

Regarding claim 8, based on the disclosure of Uhrlandt et al., the ratio of Sears value to BET surface area would fall within the range of about 0.02 to about 0.208 which has overlapping ranges with the instant claim.

Regarding claim 9, Uhrlandt et al. disclose a ratio of BET/CTAB of from 0.8 to 1.3 (column 1, lines 40-45; column 2, lines 5-35). It is again noted that there is overlapping ranges of this ratio with the instant application.

Regarding claim 16, Uhrlandt et al. disclose that the precipitated silica has been modified with organosilane compounds of the formulas as that taught in columns 3 and 4 of said reference (columns 3-4).

Regarding claim 17, Uhrlandt et al. disclose a similar organosilane compound used to modify the precipitated silica, based on formula (III), $R^1_n(RO)_{3-n}Si(Alkenyl)$, in which $n=3$ and R^1 : alkyl (column 3, lines 5-14). It is noted that based on the recitation of claim 17 of " $SiR^2_{4-n}X_n$ (where $n=1,2,3,4$)" as one type of organosilanes, and considering $n=1$, X : alkenyl, and R^2 : alkyl, Uhrlandt et al. reads on the limitations of claim 17.

Regarding claim 19, Uhrlandt et al. disclose the use of said silica in any rubber applications such as, for example, tires, conveyor belts, seals, V-belts, tubes, shoe soles, etc. (column 5, lines 28-33). In addition, Uhrlandt et al. disclose the use of said silica in vulcanizable rubber compounds (column 4, lines 33-35).

Regarding claim 20, Uhrlandt et al. disclose the use of said precipitated silica in battery separators (column 5, lines 31-33).

Regarding claim 20, Boyer et al. disclose that use of precipitated silica for battery separators are known; thus, one skilled in the art would have appreciated the use of said silica with the physical chemical properties as detailed above as a battery separator.

(10) Response to Argument

Appellants argue that based on a patent, namely, U.S. Patent No. 5,929,156 to Fultz et al. which states "It is well known that a single physical characteristic, such as surface area or particle size, does little to describe a silica product or to predict its behavior in a specific application. The mechanisms which govern how a particular silica product performs in a given end-use can be extraordinarily complex and are often not well understood; thus, linking one or even a few conventionally-measured silica product physical properties to particular end-use performance characteristics is extremely

difficult and potentially misleading.", the precipitated silica having the characteristics recited in the claims is uniquely exceptional and cannot be taught by the references used in the rejection.

This is not found persuasive because Fultz et al. merely presents an opinion; no tangible or hard evidence has been submitted to show that the combination of references, specially Esch et al. in their broadest disclosure, which have substantially overlapping ranges of the claimed characteristics would not meet the limitation of instant claims under any circumstances.

It is, respectfully, noted that the Declaration submitted provides details on the preparation of only one example of Esch et al., namely Example 3; whereas, a reference disclosure is not limited to, only, its examples, and certainly not to a single example. In other words, the declaration is not commensurate with scope of the claims, additionally, because no measurements and data on the claimed characteristics of the precipitated silica recited in claim 1 (such as BET, CTAB, DBP, etc.) has been presented. Also, there is insufficient result to establish unexpected results and criticality for the measurements of instant application compared with prior art of record.

In this regard, MPEP 716.02(d) states:

"Whether the unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, the "objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support." In other words, the showing of unexpected results must be reviewed to see if the results occur over the entire claimed range". *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980).

Also,

"To establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range". *In re Hill*, 284 F.2d 955, 128 USPQ 197 (CCPA 1960).

Appellants have argued that since the table presented in column 2 of Esch et al. shows an increase in Sears value as BET increases, then one of ordinary skill in the art would not interpret Esch et al. as describing as part of their invention a Sears value/BET ratio range of from about 0.017 to about 0.57.

The Examiner, respectfully, submits that the reference, as a whole, teaches ranges of values for Sears number and BET that when calculated in a ratio of Sears value/BET would give results which would fall within the range of about 0.017 to about 0.57. Therefore, the reference is seen to have overlapping ranges of said ratio with the ones instantly claimed absent clear and specific evidence proving the contrary. Appellants have not presented any hard and clear evidence proving that Esch et al. could not and would not be able to present a ratio of Sears value/BET which would fall within the claimed ratio. On the other hands, Appellants appear to keep referring to only the examples of Esch et al., and specifically to one example of said reference; it is to be noted that examples are only part of the disclosure of a reference. It should be noted that the rejection of the claims were made under 103(a) obviousness rejection, and as it is made clear in MPEP, overlapping ranges have been held to establish *prima facie* obviousness. It is to be noted that the references, especially Esch et al., are from the same field of art as the instant application is drawn.

Appellants have argued that there is no indication in Esch et al. of any appreciation of the significance of Sears value/BET ratio, and thus no motivation to optimize it; thus, Appellants concluded that the Examiner had not shown that the prior art was aware that Sears value/BET ratio is a result effective variable.

It is, respectfully, submitted that all the rejections have been made under 103(a) obviousness and not anticipation. It is to be noted that Esch et al. is drawn to the same field of art and has substantially overlapping ranges of the characteristics recited in instant claims; said reference discloses ranges of Sears value and BET which upon taking a ratio thereof, an overlapping ranges of ratios of Sears value/BET is obtained as detailed out above. Therefore, the combination of references as detailed out above is seen to have established a proper obviousness rejection. Appellants have not shown criticality of the ratios recited by way of tangible evidence.

With reference to the double-patenting rejection, it is to be noted that, as presented above, said rejection is proper and valid; thus, it stands.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Art Unit: 1793

/Pegah Parvini/

Examiner, Art Unit 1793

Conferees:

/J.A. LORENZO/

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